

US EPA	POTENTIAL HAZARDOUS WASTE SITE SITE IDENTIFICATION ("DISCOVERY")		I. IDENTIFICATION			
			01 ST AK	02 SITE NUMBER AKD000850701		
II. SITE NAME AND LOCATION						
01 SITE NAME (Legal, common, or descriptive name of site) Flint Hills Resources' North Pole Refinery (Previously: Mapco North Pole Refinery)			02 STREET, ROUTE NUMBER, OR SPECIFIC LOCATION IDENTIFIER 1100 H and H Lane			
03 CITY North Pole			04 ST AK	05 ZIP CODE 99705	06 COUNTY Fairbanks North Star	07 CO CODE 090
08 CONG DIST						
09 DIRECTIONS TO SITE (Starting from nearest public road; enter up to 4 lines of text)						
NOTE: Change of Site Name due to change of Ownership of Property						
III. RESPONSIBLE PARTIES						
01 OWNER (If known) Flint Hills Resources Refinery			k02 STREET (Business, residential, mailing) 1100 H & H Lane			
03 CITY North Pole			4 ST AK	05 ZIP CODE 99705	06 TELEPHONE NUMBER	
07 OPERATOR (If known and different from owner)			08 STREET (Business, residential, mailing)			
09 CITY			10 ST	11 ZIP CODE	12 TELEPHONE NUMBER	
13 TYPE OF OWNERSHIP (Mark one; use "insert" mode)						
<input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL (Agency name): _____ <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER (Specify): _____ <input type="checkbox"/> G. UNKNOWN						
IV. HOW IDENTIFIED						
01 DATE IDENTIFIED 05/25/2010 (Month/Day/Year)		02 IDENTIFIED BY (Mark all that apply; use "insert" mode)				
		<input checked="" type="checkbox"/> A. CITIZEN COMPLAINT <input type="checkbox"/> B. INDUSTRY <input type="checkbox"/> C. STATE/LOCAL GOVERNMENT <input type="checkbox"/> D. AERIAL RECONNAISSANCE <input type="checkbox"/> E. RCRA INSPECTION <input type="checkbox"/> F. SURFACE IMPOUNDMENT ASSESSMENT <input type="checkbox"/> G. OTHER EPA IDENTIFICATION <input checked="" type="checkbox"/> H. OTHER (Specify): Community Action Group Petition				
V. SITE CHARACTERIZATION						
01 TYPE OF SITE (Mark all that apply; use "insert" mode)						
<input type="checkbox"/> A. STORAGE <input type="checkbox"/> B. TREATMENT <input type="checkbox"/> C. DISPOSAL <input type="checkbox"/> D. UNAUTHORIZED DUMPING <input type="checkbox"/> E. OTHER (Specify): Refinery						
02 SUMMARY OF KNOWN PROBLEMS (Provide narrative description; enter up to 6 lines of text)						
New information received via PA Petition. Drinking water wells contaminated with Sulfolane. For further information see EPA Region 10 Site Records File and ADEC Contaminated Sites Program at http://www.dec.state.ak.us/spar/csp/search, and http://www.dec.state.ak.us/spar/csp/sites/north-pole-refinery						
03 SUMMARY OF ALLEGED POTENTIAL PROBLEMS (Provide narrative description; enter up to 5 lines of text)						
VI. INFORMATION AVAILABLE FROM						
01 CONTACT Brandon Perkins		02 OF (Agency/Organization) USEPA R10, ECL, Assessment & Brownfields Unit # 1			03 TELEPHONE NUMBER (206) 553-6396	
04 PREPARED BY M.H. Lindeman		05 AGENCY USEPA R10	06 ORGANIZATION ECL, Assessment & Brownfields Unit # 1	07 TELEPHONE NUMBER (206) 553-5113	08 DATE (Month/Day/Year) 06/25/2010	



Selecting Site Types: (Site Name): Flint Hills Resources' North Pole Refinery, AK

Listing of Main Categories and Subcategories

X Manufacturing/Processing/Maintenance

Chemicals and Allied Products
Radioactive Products
Primary Metals/Mineral Processing
X Oil and Gas Refining
Metal Fabrication/Finishing/Coating and Allied Industries
Lumber and Wood Products/Pulp and Paper
Lumber and Wood Products/Wood Preserving/Treatment
Plastics and Rubber Products
Electronic/Electrical Equipment
Electric Power Generation and Distribution
Coal Gasification
Ordinance Production
Coke Production
Trucks/Ships/Trains/Aircraft and Related Components
Tanneries
Fabrics/Textiles

Mining

Coal
Oil and Gas
Metals
Non-Metal Minerals

Waste Management

Municipal Solid Waste Landfill
Industrial Waste Landfill
Co-Disposal Landfill (Municipal and Industrial)
Industrial Waste Facility (Non-Generator)
Radioactive Waste Treatment, Storage, Disposal (Non-Generator)
Mine Tailings Disposal
Illegal Disposal/Open Dump

Recycling

Batteries/Scrap Metals/Secondary Smelting/Precious Metal Recovery
Waste/Used Oil
Automobiles/ Tires
Drums/Tanks
Chemicals/Chemical Waste (e.g. Solvent Recovery)

Other

Treatment Works/Septic Tanks/Other Sewage Treatment
Transportation (e.g. Railroad yards, Airport, Barge Docking Site)
Product Storage/Distribution
Ground Water Plume Site
Contaminated Sediment Site
Retail/Commercial
Agricultural (e.g. Grain Elevator)
Spill or Other One-Time Event
Military
Research, Development, and Testing Facility
Dust Control

ADDING A SITE TO CERCLIS?

SITE NAME: Flint Hills Resources' North Pole Refinery

Complete a Site ID Form and this form, then submit to Monica Lindeman

Name of SAM/OSC Brandon Perkins

Is this a Federal Facility ☐ Yes ☒ No

Non-NPL status value PO (see HQ reference guide p.3 attached)

PA Petition ☒ Yes ☐ No

Date of Petition 5/21/2010

Date Petition received 5/25/2010

PA start date: (PA#)

planned date _____ SAM knowledge

or

actual date 6/21/2010 Date draft TDD created, or
for Fed Fac sites - date
Work Assignment created

SI start date:

planned date _____ SAM knowledge

or

actual date _____ Date draft TDD created

ESI start date:

planned date _____ SAM knowledge

or

actual date _____ Date draft TDD created

Removal start date:

Removal completion date:

planned date _____ OSC knowledge

or

actual date _____ Date draft TDD created

Integrated Assessment start date:

planned date _____ SAM/OSC knowledge

or

actual date _____ Date draft TDD created

(see reverse)

Status

- [Gardening study planned \(5/12/10\)](#)
- [Summary of first meeting of the Technical Project Team posted \(4/28/10\)](#)
- [New fact sheet, Community Health Concerns About Sulfolane \(4/23/10\)](#)

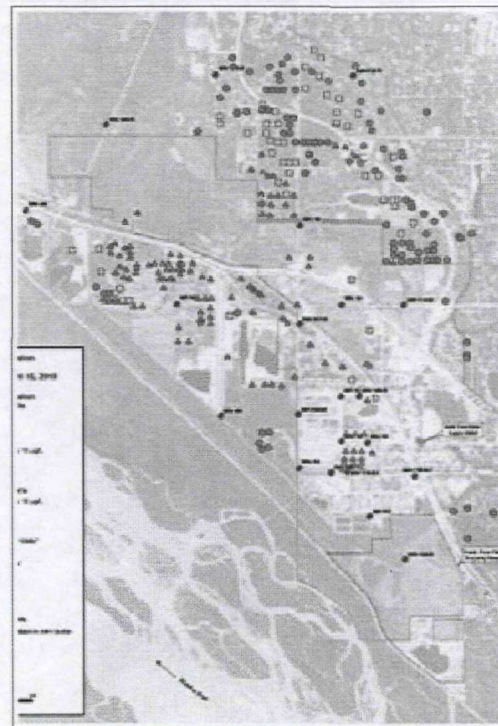
Flint Hills Resources is working with DEC's Contaminated Sites Program and the City of North Pole on an environmental investigation of the contaminant Sulfolane, found in the groundwater on the refinery property. Sulfolane, or tetrahydrothiophene 1, 1-dioxide, is a solvent developed by Shell Oil Company in the early 1960s and is used for the recovery of aromatic components from petroleum.

Ongoing monitoring efforts for sulfolane contamination began in 2001 and were limited to the refinery property, based on available groundwater data. In October 2009 the refinery's investigators found the compound in new monitoring wells immediately north of the refinery's property, near private homes. Sulfolane concentrations were below DEC's current groundwater cleanup standard of 350 parts per billion (ppb) for the refinery.

Due to the presence of private drinking water wells in the area and the fact that limited studies are available on the health effects of sulfolane, particularly at exposure to low levels, DEC and Flint Hills Resources are taking this discovery very seriously and exercising appropriate caution.

Current and Future Action

Flint Hills is working with the City of North Pole, DEC and the Alaska Division of Public Health to be sure that private well owners have safe water to drink and that the City's drinking water supply is safe. The refinery owners have been meeting their regulatory obligations and are being proactive in working with the City and State to protect the drinking water supply and public health. The groundwater investigation is ongoing, and cleanup efforts at the refinery have been upgraded and will continue to expand.



Map showing area of concern with three ranges of residential and monitoring well data. Click on map for more information.

- The Alaska Division of Public Health asked the federal Agency for Toxic Substances and Disease Registry (ATSDR) to help review the health effects research and advise on a recommended limit for sulfolane in drinking water. The ATSDR released their report on February 9, 2010, recommending 25 parts per billion sulfolane as the most protective level for drinking water. See our [reports page](#) for the report, along with a companion document prepared by the Alaska Division of Public Health. The Alaska Division of Public Health will also prepare a health consultation, which will explain the implications of sulfolane consumption at the levels found in drinking water and recommendations for using water for other purposes.
- Flint Hills and the City of North Pole are sampling the City's drinking water supply weekly. DEC's Environmental Health Lab is also testing the water. The city's treatment system removes the traces of sulfolane which show up in tests of raw water. The water going to consumers does not have any sulfolane in it.
- Flint Hills has hired Barr Engineering to research treatment methods to remove sulfolane from city water and upgrade the cleanup efforts on the refinery. They will conduct a pilot study to ensure an effective method, as sulfolane is not a common chemical with off-the-shelf treatment options.
- Flint Hills has committed to providing private well owners with a long-term solution, which will most likely include connecting as many houses as possible with private wells to the City water supply. Holding tanks or individual treatment systems may be needed for houses outside the City's limits.
- The refinery has upgraded their remediation system to assist pumping groundwater at a higher rate without petroleum products fouling the air strippers. The system removes petroleum products and sulfolane, helping reduce the source of sulfolane in the ground, slow the movement of sulfolane, and reduce concentrations "downstream" of the flow of groundwater over time. More upgrades to the remediation system are being evaluated, such as additional remediation units on the refinery property and will be implemented as soon as possible. Flint Hills is also systematically evaluating their refinery for any potential releases, although there are no signs that an additional leak of sulfolane has occurred.
- DEC Drinking Water Program is working with the City of North Pole on long term monitoring and treatment options to ensure the

long term protection of the city water supply.

- Flint Hills continues to work on delineating the extent of the plume and has supplied DEC with a work plan for additional monitoring wells at various depths. Additional monitoring wells were installed in early November and more are being installed currently. Wells are being drilled at greater depth to discover concentrations deeper in the ground.
- A Technical Project Team provides comprehensive and coordinated oversight for the investigation of sulfolane in the groundwater in North Pole. The team consists of state, federal and industry representatives along with experts in the fields of toxicology, engineering, hydrology, and environmental chemistry.

Stay informed:

Join DEC's [email list for updates on sulfolane issues](#).

History of Sulfolane Issues at the North Pole Refinery

Table of Contents

Flint Hills Resources' North Pole Refinery, near Fairbanks, Alaska, has a crude oil processing capacity of about 220,000 barrels per day. The plant processes North Slope crude oil and supplies gasoline, jet fuel, heating oil, diesel, gasoil and asphalt to Alaska markets. Constructed by Earth Resources, the refinery produced its first barrel of product in August 1977, just two months after crude oil began to flow through the Trans Alaska Pipeline. MAPCO bought the plant in 1980 and expanded production to include gasoline and asphalt in addition to jet fuel and heating oil. MAPCO merged with The Williams Companies in 1998, and then sold the facility to Flint Hills Resources in 2004.

DEC has documented oil spills onto or into land from refinery operations over the plant's history. Those spills have occurred from leaking storage tanks, leaking sumps, overflow of the wastewater handling pond and certain handling procedures. Soil and groundwater contamination is of a nature and extent that cleanup activities will be a long-term process.

Stay informed:

Join DEC's [email list for updates on sulfolane issues](#).

The 1970 - 1990s

In the late 70s and early 80s, very large but unknown amounts of petroleum product leaked from above-ground bolted storage tanks. These tanks have since been taken out of service. In 1986 the US Environmental Protection Agency (EPA) issued two [RCRA](#) 3008 Administrative Orders on Consent to then-owner MAPCO, and DEC issued a Compliance Order by Consent. These orders outlined a cleanup and monitoring strategy.

In 1987 monitoring well data indicated that groundwater on the refinery was contaminated with petroleum compounds, such as benzene, toluene, ethylbenzene, xylenes, trimethylbenzenes and naphthalene above DEC's regulatory maximum contaminant levels for drinking water. The drinking water used at the refinery was tested and found to be unaffected, as was the city water system. The refinery connected to City water and began some treatment and monitoring of the groundwater, and performed further site characterization.



In 1999 EPA determined that the facility had largely met the requirements of its compliance orders and deferred lead agency status to DEC pending negotiation and implementation of these and other points:

- I. Review site characterization to define the nature and extent of existing soil and groundwater contamination and any changes in hydrogeology,
- II. Develop an interim and long-term corrective action plan, including establishing plume containment or control procedures for releases that may migrate offsite.

Between 2000 - 2010



Site characterization activities during 2000 to 2002 identified an unknown chemical in scattered groundwater monitoring wells. Further analysis identified it as sulfolane, and it was believed to be coming from past gasoline spills. Sulfolane, used in the refining process, was dissolved in gasoline but is also soluble in water, allowing it to dissolve in and be carried along with groundwater.

In 2004, Flint Hills purchased the refinery. DEC and Flint Hills are engaged regarding the appropriate and required actions to address the contamination. In addition, Flint Hills has placed the prior owner, Williams Alaska, on notice of the situation, as historical spills appear to be involved. DEC approval of Flint Hills' Corrective Action Plan of 2006 set the groundwater cleanup level for sulfolane of 350 ppb, based on available toxicity data and recommendations made for the Canadian Province of British Columbia. Cleanup levels established by other states, if any, were unavailable or non-existent and the U.S. government has none. The order also defined two interim goals: remove free-phase product (oil) from the subsurface and dissolved benzene to the extent practicable and prevent further migration of any of the contamination. The existing groundwater pumping system was expanded to remove more product and contaminated groundwater. Once removed from the subsurface, the oil is separated, and the impacted water is run through air

strippers to remove the contamination.

This remediation system is still operating, and monitoring on the refinery property indicates contaminants are below cleanup level of at the property boundaries. Additionally, the overall concentration trends appear stable, so there is no indication of a new release of sulfolane or any indication that concentrations northwest of the refinery (in the direction of the flow of groundwater) should increase over time. Further investigation will need to confirm this, though, and treatment system upgrades will continue.

DEC's Cleanup Level



DEC regulates soil and groundwater contamination from the refinery. We have an established process for setting cleanup levels in soil and groundwater. Some levels are set in regulation; we calculate others for compounds based on available information and use set equations and exposure assumptions. In making calculations for cleanup levels not set in regulation, we consider standards set at the federal level and by other states. These levels can vary among agencies. The U.S. Environmental Protection Agency has never established a cleanup level for sulfolane. The chemical is not a regulated drinking water contaminant, so neither the state nor federal government has established maximum contaminant levels for sulfolane in drinking water systems or private wells.

During approval in 2006 of Flint Hills' Corrective Action plan for overall contamination at the refinery, DEC set a groundwater cleanup level for sulfolane of 350 parts per billion (ppb). This standard is based on analysis of toxicity data and recommendations made for the Canadian Province of British Columbia and was calculated to be protective of human health and the environment.

In 2006, the monitoring well data on the refinery property did not suggest that concentrations of sulfolane approaching the cleanup level would appear in drinking water wells. When DEC learned in late

October 2009 that people were potentially drinking water with the chemical in it, we asked the Alaska Division of Public Health to advise us on a recommended limit of sulfolane in drinking water. They in turn requested assistance from their federal counterpart, the Agency for Toxic Substances and Disease Registry (ATSDR). The ATSDR report, released February 9, 2010, is available on our [Documents page](#), along with a companion document prepared by the Alaska Division of Public Health. That agency will also prepare a health consultation, which will explain the implications of sulfolane consumption at the levels found in drinking water.

DEC asked the U.S. Environmental Protection Agency's Superfund program to review our cleanup level and make recommendations on levels they think are protective, given that people are impacted and uncertainty in the toxicity data exists. A scientist from that program concluded in early December 2009 that DEC cleanup level of 350 ppb is a reasonable number to use until ATSDR finishes its analysis. DEC will reevaluate its cleanup level and base a new one upon the ATSDR recommendation.

Converting units of measurement

On this webpage we talk about units of sulfolane using only parts per **billion**, or ppb.

Micrograms per cubic liter ($\mu\text{g/L}^3$) are the same as parts per **billion** (ppb).

Milligrams per cubic liter (mg/L^3) are the same as parts per **million** (ppm).

To convert from parts per million to parts per billion:
Multiply the ppm concentration by 1,000. The resulting concentration is in ppb.

Example: $3 \text{ ppm} \times 1,000 \text{ ppm/ppb} = 3,000 \text{ ppb}$

To convert from ppb to ppm:

Divide the ppb concentration by 1,000. The resulting concentration is in ppm.

Example: $3,000 \text{ ppb} \div 1,000 \text{ ppb/ppm} = 3 \text{ ppm}$

See our fact sheet [Understanding Contaminant Concentrations \(PDF\)](#)

[New Database Search](#) [Printer Friendly Version](#)**Alaska Department of Environmental Conservation****Contaminated Sites Database****Cleanup Chronology Report for
Flint Hills Resources Refinery**

File Number	100.38.090	Hazard ID	539
SiteName	Flint Hills Resources Refinery	Staff	Ann Farris - 9074512104
Address 1	1100 H & H Lane	Status	Active
Address 2		Landowner	Williams Energy Services - Anchorage
City/State/Zip	North Pole, AK 99705		
Latitude	64.735054	Meridian	Fairbanks
Longitude	-147.345115	Range	002
Section	16	Township	002
Institutional Controls Report	No ICs exist for this site.	Location	View site on map

Problem/Comments

Very large but unknown amount of product leaked from above ground bolted storage tanks in late 70s and early 80s. Estimate of 275,000 gallons of petroleum product recovered with drawdown well recovery as of 8/90. Air strippers installed to treat groundwater in 9/88. During 2000 to 2002 Site Characterization activities, the chemical sulfalone was discovered periodically in scattered ground water monitoring wells. 1987 monitoring well indicated contaminated above ADEC MCLs. Water at refinery okay and on city water system since 1988. Permit# 9031-DB002 and 8631-AA015. State of Alaska lease# 50824 (rp1tr4). Previous file# 100.02.001. Last staff assigned were Janssen and Bauer. Spill transferred from PERP #02309900301 (2,000 gallons of kerosene and residual crude - 1/3/02). Name changed from Williams Refinery 9/24/03. Spill number 01309908201. Spill date 3/23/2001. Site characterization activities and corrective action plan are provided in Shannon & Wilson's report titled "Site Characterization and Corrective Action Plan, Williams Alaska Petroleum, Inc. North Pole Refinery" dated June 2002. Flint Hill Resources took control of the refinery in 2004. ADEC approved site characterization and corrective action plan January 24, 2006. Contaminant of concerns are as follows. Soil: Benzene, Toluene, Ethylbenzene, Xylene (total), 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, Naphthalene, 2-Methyl-naphthalene, and Sulfalone. Groundwater: Benzene, Toluene, and 1,2,4-trimethylbenzene.

Glossary/Acronyms

Action Date	Action	Description	DEC Staff
03/01/1978	Update or Other Action	(Old R:Base Action Code = RAPR - Remedial Action Plan Review (CS)). R.W. Beck and Associates, "Spill Prevention Control and Countermeasure Plan, North Pole Refining."	No Longer Assigned,
08/09/1982	Site Characterization Workplan Approved	(Old R:Base Action Code = SI - Site Investigation). North Pole Refining contracted Marine Consultants to delineate contaminated area and confirm source. Boreholes drilled.	No Longer Assigned,
11/30/1983	Update or Other Action	(Old R:Base Action Code = SI - Site Investigation). Duane Miller and Associates "Groundwater Investigation, North Pole Refinery, North Pole, Alaska." Evaluated feasibility of using groundwater for cooling products.	No Longer Assigned,

06/14/1985	Update or Other Action	(Old R:Base Action Code = FI - Field Inspection (General)). City of North Pole sampled water treatment plant and reservoirs in June, July and August of 1985. Purgeable aromatics detected at water treatment plant and in new reservoir.	No Longer Assigned,
01/06/1986	Update or Other Action	EPA issues two Administrative Orders on Consent. One was a 3008(a) Order which found MAPCO to be operating as an illegal treatment, storage and disposal facility and assessed a penalty. The other was a 3000(h) which ordered corrective action of the facility. The 3000(h) ordered the Facility to complete a RCRA Facility Assessment (RFA), Interim Measures (removal of wastes from the surface impoundment and sumps), complete a RCRA Facility Investigation (RFI) and if necessary complete a Corrective Measure Study (CMS).	Bauer, Doug
11/06/1986	Update or Other Action	(Old R:Base Action Code = FI - Field Inspection (General)). Water system at the facility sampled monthly between October and December 1986. Up to 350 ppb benzene detected.	No Longer Assigned,
11/28/1986	Update or Other Action	(Old R:Base Action Code = FI - Field Inspection (General)). ADEC took water samples. Low levels of ethylbenzene and toluene found.	No Longer Assigned,
12/03/1986	Update or Other Action	(Old R:Base Action Code = FI - Field Inspection (General)). City of North Pole sampled water supply wells. No purgeable aromatics detected.	No Longer Assigned,
12/11/1986	Long Term Monitoring Established	COBC required: 1) reactivation of existing, and installation of new collection wells, as necessary to recover free LNAPL product; 2) Installation of at least 20 monitoring wells, in the vadose and saturated zones, around the perimeter of the facility to monitor the migration of free product and the groundwater plume; 3) monthly sampling of all on-site drinking water wells; 4) Modification of the expansion of the on-site waste water pond; 5) performance of an environmental audit.	Bauer, Doug
01/27/1987	Update or Other Action	(Old R:Base Action Code = RAPR - Remedial Action Plan Review (CS)). Shannon and Wilson, Inc. "Work Plan for Further Studies on Site Hydrogeology, North Pole Refinery, North Pole, Alaska." Addressed verification of groundwater flow direction and rate, and suggested monitoring well locations and installation procedures.	No Longer Assigned,
01/27/1987	Update or Other Action	(Old R:Base Action Code = SI - Site Investigation). Shannon and Wilson, Inc. "Preliminary Report on Site Hydrogeology, North Pole Refinery, North Pole, Alaska."	No Longer Assigned,
02/09/1987	Update or Other Action	(Old R:Base Action Code = PER - Permit Action at Site). ADEC issued Air Quality Control Permit #8631-AA015. Expiration 1/30/90.	No Longer Assigned,
02/11/1987	Update or Other Action	(Old R:Base Action Code = SI - Site Investigation). Shannon and Wilson, Inc. "Test Holes to Explore Permafrost Conditions, North Pole Refinery, North Pole, Alaska." Four test holes drilled.	No Longer Assigned,
02/24/1987	Cleanup Plan Approved	(Old R:Base Action Code = RAPR - Remedial Action Plan Review (CS)). "Oil Discharge Contingency Plan" approved provided changes made and submitted to ADEC by 4/30/87	No Longer Assigned,

		along with plans for monitoring well installation.	
03/02/1987	Update or Other Action	(Old R:Base Action Code = SI - Site Investigation). Shannon and Wilson, Inc. submitted report, "As-Built Logs of Groundwater Monitoring Wells, North Pole Refinery, North Pole, Alaska." Seven monitoring wells installed with sampling and analysis of 5 soil samples.	No Longer Assigned,
03/23/1987	Update or Other Action	(Old R:Base Action Code = SI - Site Investigation). Shannon and Wilson, Inc. Soil samples from installation of monitoring wells 101A, 103 and 105A showed up to 5.2 ppm ethylbenzene, 22 ppm toluene and 14 ppm xylenes.	No Longer Assigned,
04/01/1987	Update or Other Action	(Old R:Base Action Code = MS - Monitoring/Sampling). Shannon and Wilson, Inc. "Field Test Results from Sampling of Groundwater, North Pole Refinery, North Pole, Alaska." Seven monitoring wells sampled in accordance with 2/11/87 sampling plan.	No Longer Assigned,
04/01/1987	Update or Other Action	(Old R:Base Action Code = RAPR - Remedial Action Plan Review (CS)). Shannon and Wilson, Inc. recommended procedures for measurement of groundwater elevation and product thickness.	No Longer Assigned,
06/08/1987	Update or Other Action	(Old R:Base Action Code = FI - Field Inspection (General)). Soil borings 106-110 drilled and soil samples taken. Water sample obtained from Well 1.	No Longer Assigned,
06/15/1987	Update or Other Action	(Old R:Base Action Code = SI - Site Investigation). In response to a CO, Fluor Alaska, Inc. submitted report, "Mapco Alaska Petroleum, Inc., Environmental Audit Report, North Pole Refinery." The report addressed product handling procedures, and sources of hydrocarbons in the stormwater holding pond, ground and groundwater.	No Longer Assigned,
11/25/1987	Update or Other Action	(Old R:Base Action Code = FI - Field Inspection (General)). Testing of all tanks and 3 sumps at refinery.	No Longer Assigned,
03/30/1988	Update or Other Action	(Old R:Base Action Code = RAPR - Remedial Action Plan Review (CS)). "1988 Remedial Action Plan" submitted to ADEC. Included expanded product recovery, water treatment (including VOC stripping unit), and additional monitoring wells.	No Longer Assigned,
05/11/1988	Update or Other Action	(Old R:Base Action Code = SI - Site Investigation). Shannon and Wilson, Inc. submitted report, "Borings for Soil Quality Testing, North Pole Refinery, North Pole, Alaska." Five exploratory borings were drilled near the contaminated water holding pond, including one monitoring well. Soil was sampled for metals, purgeable aromatics, and halocarbons.	No Longer Assigned,
09/01/1988	Update or Other Action	(Old R:Base Action Code = F - Site Treatment, Soil/H ₂ O). Air strippers installed to treat groundwater in late September 1988.	No Longer Assigned,
11/22/1988	Update or Other Action	(Old R:Base Action Code = RAPR - Remedial Action Plan Review (CS)). Approval of Oil Spill Contingency Plan. Plan in effect until 1/12/91.	No Longer Assigned,
05/11/1990	Site Ranked Using the AHRM	Initial ranking.	No Longer Assigned,

06/29/1990	Update or Other Action	(Old R:Base Action Code = PER - Permit Action at Site). Wastewater disposal permit issued. Permit 9031-DB002.	No Longer Assigned,
06/24/1991	Update or Other Action	(Old R:Base Action Code = MS - Monitoring/Sampling). MAPCO reported that monitoring wells were sampled for BTEX. All were non-detectable except for MW-123 and MW-124 which sampled at 19 ppb and 270 ppb benzene respectively.	No Longer Assigned,
06/24/1991	Update or Other Action	(Old R:Base Action Code = F - Site Treatment, Soil/H2O). Samples were obtained from the air stripper influent and effluent on 6/24/91 and 7/31/91. Stripper C effluent was 10 ppb and the combined effluent from all strippers calculated to be 4.6 ppb.	No Longer Assigned,
10/22/1991	Update or Other Action	(Old R:Base Action Code = RAPR - Remedial Action Plan Review (CS)). Approved application of non-UST cleanup standards for custom-blending operation of contaminated gravels and de-watered sludges for thermal incineration. Approval of 200 ppm TPH for effluent contingent upon proper final disposition.	No Longer Assigned,
02/23/1993	Update or Other Action	(Old R:Base Action Code = RPL2 - Site Information Request Letter). Sent PRP-CS Database Notification letter to RP requesting update and more environmental information concerning contaminated sites. Mapco responded that landowner was the state.	Peterson, Jeff
04/01/1993	Update or Other Action	(Old R:Base Action Code = MS - Monitoring/Sampling). Reviewed monitoring, sampling report for April 1993.	Basketfield, Dan
12/01/1993	Update or Other Action	(Old R:Base Action Code = PER - Permit Action at Site). Expiration of permit 9031-DB002.	No Longer Assigned,
01/25/1994	Site Added to Database	Petroleum product leak.	No Longer Assigned,
06/06/1994	Update or Other Action	Site is on continuous pump and treat remediation program. Monthly reports are submitted to ADEC. Extent of contamination defined to 40 acres in 1990. March 1993 plume was narrowed and BTEX detection levels were very low to non-detectable. April 30, 1994 recovered 337,983 gallons from drawdown well. June 1994 mitigated ground water flow such that BTEX levels are low to non-detectable downgradient of refinery fence line.	Hung, Eleanor
06/07/1994	Site Ranked Using the AHRM	Reranked. Previous score = 192.	No Longer Assigned,
05/11/1995	Update or Other Action	Reviewed data for period 3/94-3/95. Benzene concentrations exceed ADEC cleanup levels for MWs 105A, 107 (Lagoon B), 110 (Lagoon B), 111 (Boneyard), 112 (Boneyard), 113 (Boneyard), 114 (Sump 905), 115 (Sump 05-7), 116 (Sump 901), 123, 125 and 127.	Hung, Eleanor
02/04/1997	Update or Other Action	(Old R:Base Action Code = F - Site Treatment, Soil/H2O). Installation of 7 recovery wells for static oil recovery, 7 observation wells and completion of infiltration gallery. 275,000 gallons of oil recovered as of 8/90. Bogus action date entered because there was none. Date reflects date of entry.	No Longer Assigned,

11/24/1997	Update or Other Action	D. Bauer assigned to develop communication protocol with EPA Region 10.	Bauer, Doug
04/30/1999	Update or Other Action	ADEC and EPA Region 10 entered into a site specific communication protocol. EPA has determined that the Facility has met the requirements of the 3008(a) order and completed the Interim Measures, RFA, and RFI required by the 3008(h) order. Protocol defers EPA 3008(h) Corrective Measures Study (CMS) to ADEC pending negotiation and implementation of the following: 1) Site Characterization review: define the nature and extent of existing soil and groundwater contamination for NAPL and dissolved phases; define the nature and extent of any changes in hydrogeology. 2) Development of interim and long-term corrective action plan: selection of applicable remediation option; establishment of interim and long-term corrective action implementation schedule; establishment of plume containment or control procedures for existing and future release that may be reasonably be expected to migrate offsite. 3) Institutionalize corrective action plan by a new Compliance Order by Consent. ADEC will be the lead agency for remediation at the Facility.	Bauer, Doug
05/06/1999	Meeting or Teleconference Held	Telephone conference call with Kathleen McCullom (Mapco), D. Bauer, and Cheryl Williams (EPA) to discuss protocol agreement. Kathleen in the process of hiring a replacement environmental specialist who will be tasked with implementation.	Bauer, Doug
11/10/1999	Update or Other Action	Kent Freeman called. He is working on implementation of protocol requirements. He faxed copy of protocol agreement and referred to ADEC CS homepage for regulations and guidance documents.	Bauer, Doug
11/23/1999	Meeting or Teleconference Held	Meeting with Kathleen McCullom and Kent Freeman of Williams, and Joan Lepain of Shannon and Wilson to discuss implementation of protocol and site characterization elements.	Bauer, Doug
04/07/2000	Meeting or Teleconference Held	Meeting with Kathleen McCullom, Kent Freeman of Williams Petroleum, David McDowell and Jon Lindstrom of Shannon and Wilson to review site characterization data. Agreed to June 1, 2000 submittal for draft site characterization and corrective action plan, and draft COBC.	Bauer, Doug
06/01/2000	Update or Other Action	Received initial Draft of Site Characterization and Corrective action plan.	Bauer, Doug
12/15/2000	Update or Other Action	Received final draft of Site Characterization and Corrective Action plan.	Bauer, Doug
04/23/2001	Update or Other Action	Received Monitoring Plan	Bauer, Doug
07/12/2001	Update or Other Action	Changed Site Name from "MAPCO" to "Williams" to reflect new ownership.	No Longer Assigned,
11/02/2001	Update or Other Action	Received final Contaminant Chracterization Report.	Bauer, Doug
07/10/2002	GIS Position Updated	Plotted latitude and longitude coordinates and found them to be acceptable for associated property or address.	Goldman, Heather
		Identification of a site as part of the DEC's Brownfield	

04/28/2005	Brownfield Inventory	Inventory does not automatically qualify a site for any specific brownfield benefits, liability protection, or funding. Those determinations must be made in concert with a DEC project manager on a site-specific basis, with consideration of the site history, extent of contamination, ownership, and redevelopment plans or potential.	Carnahan, John
08/09/2005	GIS Position Updated	Moved location to Flint Hills office due to classification of site as a potential Brownfield. Update metadata accordingly:	Ernst, Torsten
01/24/2006	Site Characterization Report Approved	Shannon & Wilson's June 2002 site characterization and corrective action report approved and Sulfalone added as a regulated contaminant.	Bauer, Doug
05/08/2006	Cleanup Assumed by ADEC	Conducted a file review in response to Hannah Lager's email concerning missing contaminants of concern (CoCs). CoC added.	Bauer, Doug
03/14/2008	Update or Other Action	Project manager changed from Jim Frechione to Ann Farris.	Farris, Ann
03/20/2008	Exposure Tracking Model Ranking	Initial ranking with ETM completed.	Farris, Ann
07/03/2008	Update or Other Action	Staff conducted a site visit at Flint Hills Refinery and had a teleconference with the EPA RCRA project manager. The product recovery/hydraulic control pumping is ongoing and seems to be functioning sufficiently well to hold the "line in the sand" for benzene concentrations. There are some administrative items with EPA's RCRA orders that the EPA project manager is working on. They are comfortable with the status of the site, though, and closing two of the three orders should be completed this year. The third order will require some consult with the State AG's.	Farris, Ann
07/10/2008	Update or Other Action	Flint Hills reported sheen in their gallery pond, which holds the effluent from the air stripper treatment system. Effluent from the gallery pond discharges into the south gravel pad. Upon noticing the sheen, the pond was closed and recirculated. The pond has since been drained and cleaned. The normal operation of the system began again yesterday evening.	Farris, Ann
10/23/2008	Update or Other Action	Sept. 2008 GW Remediation Status report received. 43 gallons recovered. Sampling done from influent and effluent from the air stripper, the gallery pond effluent, 16 monitoring wells, and 9 additional wells for the data gap study. Recovery wells 21, 35, 39, and 40 were cleaned. 4 sets of nested wells were installed; a report on their installation will be forthcoming in November. No exceedances of the discharge permit were noted.	Farris, Ann
		DEC and Flint Hills met to discuss the recent anomalous detections of benzene and sulfolane in the sentinel wells on the refinery property. These contaminants did not exceed the MCLs, but indicate a potential instability in the plume due to a new leak, reduced effectiveness of the product recovery system, or shift in the hydrology. Flint Hills believes that if	

06/12/2009	Meeting or Teleconference Held	there was a leak, it is most likely in the wastewater/stormwater lines so they are completing checks on each of those lines, starting with the areas with the highest usage of sulfolane. 19 of the systems will be completed this year. 20 will be completed in 2010. One area has failed a pressure test and has been taken out of service, pending repairs. Flint Hills is also hiring an outside consultant, REISS Remediation, to review the remediation and monitoring program. This detailed review will be over the next several months and evaluate potential for increased effectiveness or coverage. The monitoring program will also change to do a more detailed assessment of the chemistry and hydrology of the system. DEC requested a change in the monthly reporting to better view the data and the historical trends as well include details on the leak detection process and other activities. These changes should occur in the June report.	Farris, Ann
07/01/2009	Meeting or Teleconference Held	Met with Flint Hills and EPA (Jan Palumbo is new project manager for site) to update EPA on status and determine where EPA is with administrative orders. EPA is still satisfied with DEC oversight and Flint Hills response to the latest data. Jan indicated the paperwork to close out the administrative orders won't be looked at until the fall, but she didn't expect there to be any issues. We plan to meet again in September to get an update from Flint Hills.	Farris, Ann
09/10/2009	Meeting or Teleconference Held	Staff met with Brian LaPlaunt and Donna Stevinson from Flint Hills to discuss the July Monthly report, the status of their internal check for piping leaks, and an upcoming project to upgrade secondary containment. Groundwater data will continue to be evaluated for a trend. No wells downgradient exceed the benzene MCL. The pump and treat system is being reviewed by Reiss Environmental this fall and FHR and Reiss will work together to make upgrades as necessary. ADEC, FHR, and Reiss will meet on Sept. 24th to discuss the timeline and approach to the review. Thirteen out of the 18 lines planned for testing have been checked. Three were taken temporarily out of service for failing the pressure tests. The secondary containment repair involves some contaminated soil. FHR will gather their sample results and present to both IPP and CS staff to determine best solution for moving forward with the work that must be done before snow.	Farris, Ann
09/23/2009	Meeting or Teleconference Held	Staff met with Flint Hills. The refinery is working with REISS Environmental to do a review and overhaul of their environmental program. They have completed bail-down and pumping tests on select product recovery wells. They also have reviewed the groundwater data. They are analyzing the data over the winter and expect to have recommendations for enhancing the system's performance by spring. Staff will meet with them on a monthly or bi-monthly basis to keep apprised of their progress.	Farris, Ann
		Staff met with FHR staff. Wastewater violation occurred (TAH at 11ug/L, limit is 10) from the air stripper gallery pond into the S gravel pit. The sheen on the gallery pond occurred twice and	

10/22/2009	Meeting or Teleconference Held	<p>the system is now operating in recirculation mode until the problem can be determined. The pump rates have been increased in the product recovery gallery so there may be free product entering the air stripper. FHR is looking into an upstream oil-water separator. Leak detection on the sump system is ongoing. 15 of 36 sumps have been inspected. Three have had leaks. One of these three is out of service completely and the other 2 are connected for stormwater purposes only and an emergency fire suppression system. Permanent repairs to these systems are pending completion of the whole system, expected to be completed by Sept. 2010. New monitoring wells were installed downgradient of the refinery and sampled for sulfolane. There were 3 sets of nested wells (12 and 25 feet) near high school, 1 shallow well near WWTP, and one 75' well on refinery property. Not all results are in yet, but sulfolane was detected in all of the wells. Another meeting will be held with City of North Pole on Oct. 30th to discuss where to go from here. Additional wells will be installed and the hydrogeology will be reevaluated.</p>	Farris, Ann
01/07/2010	Update or Other Action	<p>This week the Contaminated Sites Program updated the summary of the North Pole Refinery sulfolane contamination. Viewable at www.alaska.gov/spar/csp/sites/npolerefinery.htm, the page offers new information and ways to stay informed. Also this week we sent out the first direct written communication with local people involved and those interested in following the issue. An email group of 76 people will allow more direct and frequent communication. Fifty-two of those on the list attended the November 23rd town hall meeting. We also mailed by postal service to those apparently without an email address a printed copy of the site summary, the latest groundwater monitoring results map, and a letter similar to what the email received. DEC reviewed and approved a preliminary work plan defining the general tasks and schedule to complete the source assessment, plume delineation, and cleanup plan. 1. City wells will be monitored weekly by the City and Flint Hills until ATSDR completes their work. 2. Private well search will be completed by end of January and bottled water provided to those impacted until a permanent solution can be determined, 3. Identification of all potential sources of sulfolane on the refinery, including products being shipped off the refinery property, will be completed by mid-February, 4. Plume delineation horizontally and vertically will be completed by Spring 5. Contaminant transport numerical model is in progress and will be used to estimate historical movement as well as assess potential for future movement and evaluate effectiveness of different treatment options 6. Treatment options are being evaluated. A preliminary evaluation is expected in February. Pilot-scale testing will be needed after that to prove the technology. Staff in the Contaminated Sites and Drinking Water Program along with the Department of Health and Flint Hills personnel will meet with the Fairbanks Daily News Miner Editorial Board on January 11 to provide more detailed information than can be given in a brief</p>	Farris, Ann

		interview. Department of Health is drafting a fact sheet on sulfolane for the reporters and to send to the public regarding the toxicity of sulfolane as we know it right now. This will be followed by ATSDR's study and DHSS's North Pole Health Consultation in February.	
01/27/2010	Update or Other Action	Contaminated Sites (CS) Staff met with Flint Hills to discuss the status of plume delineation, both the vertical and horizontal extent of sulfolane concentrations. A work plan addendum is currently being prepared and is expected to be submitted to DEC the week of 02/03/10, to assist with the detection of contamination on and off site. The most recent lab samples indicate no apparent vertical trend thus far because so little information is available on well depths. Flint Hills is still sampling residential wells. They are aiming to test all wells up to the Richardson Highway in the near future. Then they will test north of the highway and west of Badger Road. DEC is preparing for a public meeting to announce and discuss the released ASTDR sulfolane levels. It is expected this information will be ready approximately the third week in February. Flint Hills is anticipating a public meeting to inform the residences where they are with getting city water hook-up. Discussions with the City must take place first; however, the meeting is expected to take place soon.	Elston, Denise
02/25/2010	Update or Other Action	Contaminated Sites (CS) staff continues to work with Flint Hills Refinery (FHR) and the City of North Pole (CNP) regarding the sulfolane plume in the groundwater. Sulfolane concentrations in CNP raw water supply is remaining stable at approximately 6 parts per billion (ppb) from Drinking Well #1. The water post-treatment samples have remained at a non-detect level. FHR has tested approximately 190 non-municipal wells to date. Approximately 80 wells have concentrations about 25 ppb. FHR is now evaluating the vertical extent of contamination. Geophysical techniques and other investigation tools are being evaluated to assist in this delineation effort, which will be ongoing through the summer. This helps with CNP's initial objective of locating a suitable site for a new city well. FHR is expected to host a meeting on April 5, 2010 to discuss hook-up to city water with all the residents with impacted wells.	Elston, Denise

Division of Spill Prevention and Response Contaminated Sites Program

Alaska Department of Environmental Conservation

State of Alaska > DEC > SPAR > Contaminated Sites Program

Welcome

Program Manager: Steve Bainbridge
(907) 451-2143

The Contaminated Sites Program (CSP) protects human health and the environment by managing the cleanup of contaminated soil and groundwater in Alaska.

Prevention - Preparedness - Response

[About Us](#) [Contact Information](#)



Quick Links

- › [State of Alaska](#)
- › [Public Notices](#)
- › [What's New?](#)
- › [Approvals & Permits](#)
- › [Guidance & Forms](#)
- › [Statutes & Regulations](#)
- › [Regulations Development](#)
- › [Contaminated Site Summaries](#)
- › [Areawide Investigations](#)
- › [The Cleanup Process](#)
- › [North Pole sulfolane issue](#)
- › [Vapor Intrusion](#) **NEW!**
- › [Qualified Persons](#)
- › [Selecting an Environmental Consultant](#)
- › [Soil Treatment Facilities](#)
- › [Approved Labs](#)
- › [Underground Storage Tanks](#)
- › [Restoration Advisory Boards](#)
- › [Report: Alaska's Legacy of Contaminated Sites \(PDF 1.6M\)](#)
- › [Publications, Fact Sheets](#)
- › [Finding out about Contaminants](#)
- › [Alaska Contaminants Project](#)

DEC Search

[find](#)

Of Interest

- › [Program Organization](#)
- › [Federal Facilities](#), including Dept. of Defense
- › [Reuse & Redevelopment](#) - Brownfields
- › [Leaking Underground Tanks](#)
- › [American Recovery & Reinvestment Act Projects](#) **NEW!**
- › [Sign up for our Email List](#)
- › [Site Map](#)
- › [Database of Contaminated Sites](#)
- › [Map of Contaminated Sites](#)
- › [Method 3 & Cumulative Risk Calculator](#)
- › [Report a Spill](#)

NOTES ON PHONE CALL - RANDY
HARRIS

PA 2 - OK

REAR

NO FORMAL REFELECT

MAKE SURE ONLY 1 EIA

PROGRAM INVOLVED,

IF TWO - THEN ENHANCE

WORKS TO THREE WILL DO

NO DUPLICATE EFFORT.